

**Chapter 382: WIND ENERGY ACT STANDARDS**

Summary: This chapter outlines requirements for the review of wind energy developments for impacts related to scenic character, shadow flicker, public safety, tangible benefits, and decommissioning under the Maine Wind Energy Act, 35-A M.R.S. §§ 3401 – 3459, as incorporated into applications under the Site Location of Development Act, 38 M.R.S. §481. Some of these standards also apply to small-scale wind energy developments pursuant to Title 38, M.R.S. §480-II. Project impacts may also be subject to review under other regulations pursuant to the Site Location of Development Act, 38 M.R.S. §481 et seq. or the Natural Resources Protection Act, 38 M.R.S. §480-A et seq.

- 1. Applicability.** This chapter applies to a proposed grid scale wind energy development that is proposed for location within an expedited permitting area pursuant to the Maine Wind Energy Act (WEA). The Scenic Character, Shadow Flicker, Public Safety, and Decommissioning Standards also apply to small-scale wind energy developments pursuant to 38 M.R.S. §480-II.
- 2. Definitions.** As used in this chapter, unless the context otherwise indicates, the following terms have the following meanings. Other terms used in this chapter have the meanings set forth in 35-A M.R.S. §3451.
  - A. Decommissioning.** “Decommissioning” means the physical removal of all components of a wind energy development, including but not limited to: generating facilities and associated foundations to a depth of at least 24 inches; other structures, buildings, roads, cabling, electrical components, and any other associated facilities and foundations to a depth of at least 24 inches, to the extent they are not otherwise in or proposed to be placed in productive use; the grading and re-seeding of all earth disturbed during construction and decommissioning; and restoration of any disturbed wetlands or critical wildlife habitat.
  - B. Horizontal View Angle.** “Horizontal View Angle” (HVA) means the angle of view, measured horizontally in degrees from a particular viewpoint, between the two outermost visible points of proposed or existing generating facilities.
  - C. Shadow Flicker.** “Shadow Flicker” means alternating changes in light intensity caused by rotating wind turbine blades casting shadows on the ground or a stationary object. Shadow flicker occurs as the shadows of the blades move past the observation point, when the rotor is directly between the observer and the sun, and the rotor is actively spinning.
- 3. Impacts to Scenic Character.** A wind energy development must not significantly compromise views from a Scenic Resource of State or National Significance (SRSNS) such that the development has an unreasonable adverse effect on scenic character or existing uses related to scenic character of the SRSNS.
  - A. Review of scenic impacts of associated facilities.** Impacts to scenic character of a wind energy development’s associated facilities are generally evaluated in the manner set forth in the WEA, 38 M.R.S. §3452 (1) & (3). However, if the Department determines that application of the WEA standards and evaluation criteria to the development may result in unreasonable adverse effects due to the scope, scale, location or other characteristics of the associated facilities, scenic impacts of the development’s associated facilities will be evaluated under the standards of the Site Location of Development Act, 38 M.R.S. §484(3), and the Natural Resources Protection

Act, 38 M.R.S. §480-D(1), in the manner provided for evaluation of scenic impacts of development other than wind energy development. An interested party may submit information regarding this determination to the Department for its consideration. The Department shall make a determination pursuant to this subsection within 30 days of its acceptance of the application as complete for processing. (35-A M.R.S. §3452(2)).

**B. Significance of the potentially affected SRSNS.** When evaluating whether the proposed development would have an unreasonable adverse effect, the Department will take into consideration all relevant evidence in the record regarding the significance of the SRSNS. In this assessment the Department will be guided by considerations including but not limited to the following:

(1) A great pond which has been rated “outstanding” for scenic character in the Maine’s Finest Lakes Study (MFL) or the Maine Wildland Lakes Assessment (WLA) will be considered to have a high level of significance.

(2) Other SRSNSs considered to have a high level of significance include natural national landmarks or federally designated wilderness areas, national or state parks, scenic viewpoints located on trails intended exclusively for pedestrian use and designated by the Department of Agriculture, Conservation, and Forestry (DACF), designated scenic rivers, scenic turnouts on designated scenic highways, and scenic viewpoints located in coastal areas scored 70 or higher in a Coastal Scenic Inventory published by DACF.

(3) For a property which is designated as a SRSNS due to its listing on the National Register of Historic Places, whether the scenic character or uses related to scenic character of the property were significant factors in the listing will be taken into consideration.

(4) Evidence of public use of the SRSNS related to the enjoyment of its scenic character will increase the significance of the resource.

(5) The significance of the SRSNS may be increased by evidence of the relatively undeveloped nature of the surrounding area or of the protection of the surrounding area through public ownership, conservation easements, or other restrictions.

(6) The significance of the SRSNS may be decreased by evidence of the degradation of the scenic character of the SRSNS by factors such as incompatible non-wind-energy development in the viewshed.

**C. Existing character of the surrounding area.** The existing character of the surrounding area will be taken into consideration by the Department as either contributing to or detracting from the significance of the SRSNS when determining whether the proposed development would have an unreasonable adverse effect. When evaluating the existing character of the surrounding area the Department will take into consideration all relevant evidence to that effect, including but not limited to:

(1) The type and amount of manmade development in the viewshed of the SRSNS, including but not limited to: roads, buildings and other structures, utility lines, communication towers, and nighttime lighting;

- (2) Whether the SRSNS is in a relatively undeveloped landscape or is located within a highly developed landscape;
- (3) The visible aspects of the natural character of the viewshed of the SRSNS, including but not limited to: vegetation and forest cover types; variations in topography and geology; prominent natural features (cliffs, mountains); and waterbodies; and
- (4) The types of existing residential, recreational, and/or commercial/industrial uses that are present in the viewshed of the SRSNS, as determined by aerial photos or other relevant evidence in the record.

Presence in the viewshed of the SRSNS of areas of cutting and removal of trees for commercial logging or forestry management activities where the forest will be allowed to regenerate naturally or by silviculture activities will not be considered to detract from the scenic character of the SRSNS for this evaluation, but visible roads or other permanent structures related to such activities may be considered to do so.

**D. Expectations of the typical viewer.** The expectations of the typical viewer will be taken into consideration by the Department as either contributing to or detracting from the significance of the SRSNS when determining whether the proposed development would have an unreasonable adverse effect. Viewer expectations are generally directly related to the existing scenic character of the surrounding area. When evaluating the expectations of the typical viewer, the Department will take into consideration all relevant evidence to that effect, including but not limited to public comments submitted by users of the SRSNS in writing, oral statements made at Department public meetings held pursuant to 38 M.R.S. § 345-A(5), and sworn testimony at public hearings held pursuant to Chapter 3 of the Department's Rules.

- (1) Viewer expectations will be considered to be high at a SRSNS which is valued for its setting in a naturally scenic landscape, e.g. the Appalachian Trail. Expectations may be lowered by substantive evidence of degradation of the scenic values of the SRSNS since its designation as a scenic resource.
- (2) Viewer expectations will be considered to be low at a SRSNS which has been designated for reasons not primarily related to its scenic value, e.g. historic sites which are listed on the National Register of Historic Places due to reasons unassociated with their scenic character.

**E. Purpose and context of the proposed activity.** The purpose and context of the proposed wind energy development will be taken into consideration by the Department as potential mitigating factors in the assessment of whether the proposed development would have an unreasonable adverse effect. Factors specific to the location of the proposed development, such as the magnitude and reliability of the wind resource present, or the proximity to transmission infrastructure, may be considered as mitigating factors. The context of the proposed development will be considered both in the physical sense and in the practical sense. Energy production alone will not be considered as a significant mitigating factor. When considering the purpose and context of the proposed activity, the Department will take into consideration all relevant evidence in the record, including but not limited to:

- (1) Data related to the magnitude and reliability of the wind resource at the proposed development site, and the potential energy output expected from the development as compared with alternative sites investigated by the applicant; and
- (2) The location of the proposed development in relation to existing transmission lines, roads or other infrastructure.

**F. Public use and enjoyment of the SRSNS.** The extent, nature and duration of public use of the SRSNS, and the likely effect of a proposed wind energy development on continued public use and enjoyment of the SRSNS, will be taken into consideration by the Department when determining whether the proposed development would have an unreasonable adverse effect. Evidence of the potential effect on the continued public use and enjoyment of the SRSNS may include but is not limited to comments submitted by users of the SRSNS in writing, oral statements made at Department public meetings held pursuant to 38 M.R.S. § 345-A(5), and sworn testimony at Department public hearings held pursuant to Chapter 3 of the Department's Rules.

- (1) When considering the extent, nature and duration of public uses of the SRSNS, and the likely effect on continued public use and enjoyment of the SRSNS, the Department will take into consideration all relevant evidence to that effect, including but not limited to:
  - (a) Evidence of the extent, nature and duration of passive recreational uses most likely to be impacted significantly, including but not limited to hiking, snowshoeing, Nordic skiing, fishing, non-motorized boating, vista appreciation from scenic viewpoints, painting and photography, and birding or other nature-watching activities.
  - (b) Evidence of the extent, nature and duration of active recreational uses most likely to be impacted significantly, including but not limited to mountain biking, ATV-riding, snowmobiling, and motorized boating.
  - (c) Evidence of tourism-related businesses or recreational clubs or organizations whose purpose or viability is related to the public use and enjoyment of the SRSNS.
- (2) The Department will consider the significance of other factors related to public use and enjoyment of the SRSNS, including but not limited to:
  - (a) The level of public use of the SRSNS. A higher level of public use may contribute to the significance of the SRSNS.
  - (b) The type of public use of the SRSNS. Passive recreational uses where the scenic character of the area is an important part of the enjoyment of the activity, will be considered to be more sensitive to visual impacts.
  - (c) The remote nature of the SRSNS. In the case of a SRSNS where remoteness and low levels of public use are integral to the experience of the typical user, low use levels may be found to increase the significance of the SRSNS.

**G. Scope and scale of the potential effect.** When evaluating the scope and scale of the potential effect of views of proposed generating facilities on the SRSNS, the Department will take into consideration all relevant evidence, including but not limited to:

- (1) Evidence of the number of turbines that would be visible from various viewpoints for users of the SRSNS, in whole or in part. Visibility must be evaluated during leaf-off conditions, and the evaluation must indicate how many of the generating facilities' nacelles, lights, blades and/or towers will be visible to users of the SRSNS.
- (2) Evidence of the distance to turbines in the viewshed from viewpoints the SRSNS.
  - (a) There is a rebuttable presumption that turbines within three miles of viewpoints within the SRSNS would cause a high impact to the scenic character of the SRSNS. This presumption may be rebutted by evidence showing that views of the turbines are limited by intervening topographic features, or other mitigating factors.
  - (b) Turbines beyond eight miles from the SRSNS will be considered insignificant in the scenic impact assessment process, 35-A M.R.S. §3452(3).
- (3) Evidence of the portion of the SRSNS from which there would be visibility of any of the generating facilities, expressed as a percentage of area for a resource such as a great pond.
- (4) Evidence of the horizontal view angle encompassing all visible turbines in the proposed wind energy development from the most affected viewpoints in the SRSNS.

**H. Cumulative scenic impact or effect.** When assessing the potential adverse scenic impact of a proposed wind energy development, the Department will take into consideration the cumulative scenic impact or effect of the proposed development in conjunction with scenic impacts from other wind energy developments located within eight miles of each SRSNS addressed by the applicant's Visual Impact Assessment (VIA). The Department will also take into consideration the cumulative impact of the proposed wind energy development on multiple SRSNSs.

- (1) When assessing the cumulative scenic impacts of multiple wind energy developments on a single SRSNS, the Department will take into consideration potential and actual scenic impacts from any wind energy developments that are existing, any wind energy developments that have been permitted pursuant to the WEA but not yet constructed, and any proposed wind energy developments for which an application has been determined to be complete for processing by the Department. Existing, permitted or proposed small-scale wind energy developments pursuant to 35-A M.R.S. §3456, as well as any other existing nonresidential wind energy developments, will also be included in this assessment. The analysis will take into account the full build-out of the existing, permitted or proposed wind energy developments, and will consider impacts from any portion of those developments that is or would be within eight miles of any portion of any SRSNS within eight miles of the proposed development under review.
- (2) When multiple SRSNSs are related to each other by common use, physical connection, or relationship in the landscape, the Department will consider the cumulative impacts of the proposed wind energy development on these SRSNSs as a group, as well as individually, to

the extent that the SRSNSs are located within eight miles of the proposed wind energy development.

- (3) An applicant's VIA must identify any areas of combined, sequential or successive observation, as defined in 35-A M.R.S. §3451, for each SRSNS within eight miles of the proposed wind energy development. When evaluating the significance of such impacts, the Department will consider all relevant evidence to that effect, including but not limited to photographic evidence of existing development and photosimulations of proposed development.

**I. Unreasonable adverse effect on scenic character.** In evaluating whether the development significantly compromises views from the SRSNS such that the development has an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS, the Department will evaluate the evidence regarding the significance of the SRSNS; the existing character of the surrounding area of the SRSNS; and the expectations of the typical user of the SRSNS, to inform a rating of the significance of the SRSNS as low, medium, or high. The Department will also evaluate the evidence regarding the purpose and context of the proposed wind energy development; the extent, nature and duration of public uses of the SRSNS and the potential effect of the proposed development on that public use and enjoyment; the scope and scale of the potential impacts of the proposed development; and any cumulative impacts on the scenic character or existing uses related to scenic character of the SRSNS, to inform a rating of the significance of the impacts as low, medium, or high. In making the final determination of the reasonableness of an impact, the Department will be guided by the following considerations:

- (1) High Significance SRSNS. A Department finding of high or medium scenic impact to a SRSNS with high significance will be considered to constitute an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS. A Department finding of low scenic impact to a SRSNS with high significance will be considered to not constitute an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS.
- (2) Medium Significance SRSNS. A Department finding of high scenic impact to a SRSNS with medium significance will be considered to constitute an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS. A finding of medium scenic impact to a SRSNS with medium significance will require further evaluation by the Department of other evidence in the record to make a determination as to whether the proposed impact would be unreasonably adverse. A Department finding of low scenic impact to a SRSNS with medium significance will be considered to not constitute an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS.
- (3) Low Significance SRSNS. A Department finding of medium or low scenic impact to a SRSNS with low significance will be considered to not constitute an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS. A finding of high scenic impact to a SRSNS with low significance will require further evaluation by the Department of other evidence in the record to make a determination as to whether the proposed impact would be unreasonably adverse.

- (4) **Highly Visible Feature.** A Department finding of high or medium impact to any SRSNS in accordance with this section will constitute a finding that the generating facilities are more than merely a highly visible feature in the landscape (35-A M.R.S. §3452).
  - (5) **Multiple Impacts.** When the Department finds that a proposed wind energy development would present multiple impacts in the medium and/or high range to multiple SRSNSs which are rated medium and/or high for significance, the Department may combine these individual impacts to increase the total level of impact presented by the proposed development.
  - (6) **Multiple Resources.** When the Department finds that a proposed wind energy development would present impacts to multiple medium and/or high significance SRSNSs which are related to each other by common use, physical connection, or relationship in the landscape, the Department may increase the significance of the SRSNSs as a group.
  - (7) **Finding on Scenic Character.** A Department finding that a proposed wind energy development would cause an unreasonable adverse effect on scenic character or existing uses related to scenic character on a single SRSNS is sufficient grounds for denial of the proposed wind energy development.
- 4. Shadow Flicker.** An applicant must demonstrate that a proposed wind energy development has been designed to avoid unreasonable adverse shadow flicker effects at any occupied building located on property not owned by or under control of the applicant (via lease or easement).
- A. An applicant must submit a shadow flicker analysis based on WindPRO, or other modeling software as approved by the Department. The analysis must assume that all shadows cast by rotating turbine blades on occupied buildings are unobstructed, and shall not take into account any existing vegetative buffers. The shadow flicker analysis shall model impacts to any occupied building within one mile, measured horizontally, from a proposed turbine.
  - B. A proposed development may not result in shadow flicker effect occurring at an occupied building for more than 30 hours per calendar year. An applicant may request that this general restriction be waived by showing that less than 30 hours of shadow flicker will occur during times when an affected public building is in use, or where an affected private building is used seasonally or intermittently such that residents will experience less than 30 hours of shadow flicker. An applicant may also qualify for a waiver by submitting evidence of agreements or easements with affected property owners in which the property owners state that they do not object to the projected level of shadow flicker.
  - C. If the shadow flicker analysis predicts that any occupied building will receive more than 30 hours of shadow flicker per calendar year, the applicant may propose mitigation measures to reduce this impact to 30 hours or less per calendar year.
- 5. Public Safety.** An applicant must demonstrate that a proposed wind energy development will be constructed with setbacks and other considerations that are adequate to protect public safety.
- A. The minimum setback for generating facilities from abutting property lines is the normal setback requirements for the local zoning classification as dictated by local municipal zoning ordinance,

or 1.5 times the maximum turbine blade height, whichever is greater. The setback distance must be measured to the edge of the generating facility foundation closest to the property line.

- B. The applicant must submit evidence to the Department that the proposed generating facilities will be constructed with appropriate safety related setbacks from adjacent properties and adjacent existing uses. Such evidence shall be prepared by a licensed professional civil engineer, and must include consideration of any applicable setback recommendations by the manufacturer of the generating facility.
- C. The Department may waive the minimum setback down to that required by local zoning to the extent that the applicant has obtained an easement or a statement of no objection to the reduced setbacks from any affected landowner. The applicant shall submit any easement or statement documents to the Department for approval. The Department may further reduce the minimum setback in accordance with any waiver of local zoning requirements obtained by the developer upon receipt of evidence of such waiver.
- D. The applicant must demonstrate that the design of the turbines for the proposed wind energy development meets acceptable industry safety standards, by submission of certificates of design compliance issued by a professional certifying organization acceptable to the Department.
- E. The applicant must demonstrate that the turbines for the proposed wind energy development have been constructed with adequate overspeed controls and related operational safety mechanisms as part of the turbine design.
- F. The applicant must submit evidence demonstrating that reasonable measures will be taken to prevent and respond to a fire at the proposed wind energy development, including but not limited to:
  - (a) Information regarding proposed active or passive fire suppression systems, including lightning protection systems;
  - (b) Operational and maintenance measures used to reduce fire risk;
  - (c) Descriptions of how proposed turbines are designed to meet applicable national or international design codes or standards or recommended fire protection practices;
  - (d) A fire protection or fire safety plan, addressing potential ignition sources, fire control procedures, anticipated fire hazards, and proposed fire protection equipment or systems; and
  - (e) Emergency communications and response protocols with local and state emergency response providers.

**6. Tangible Benefits.** An applicant must demonstrate that a proposed wind energy development will establish environmental and economic improvements or benefits to the citizens of Maine attributable to the construction, operation, and maintenance of the proposed development. The demonstration shall include, but is not limited to, the following:

- A. The estimated number of both part-time and full-time jobs to be created statewide and in the host community or communities and affected neighboring communities as a result of the construction, operation and maintenance of the proposed wind energy development. This shall include estimates of the numbers of both permanent and temporary construction-related jobs, and



operations and maintenance jobs; and the number of both part-time and full-time jobs in construction, operations and maintenance activities to be filled by trained, qualified and licensed workers pursuant to 32 M.R.S. §1101 et seq. and other applicable laws;

- B. The estimated annual generation of electricity from wind energy by operation of the proposed wind energy development and the projected impact on electrical rates in the host community or communities. The estimated annual generation of electricity shall be calculated including consideration of the estimated capacity factor for the proposed project, site-specific wind projections, any proposed curtailment measures, and curtailment anticipated to be imposed by the grid operator;
  - C. The anticipated property tax payments from the project and the projected impact on property tax rates in the host community or communities;
  - D. Evidence of a power purchase agreement or other agreement to distribute the electricity.
  - E. The projected effect on electrical rates for residents of Maine directly attributable to and expected from the construction, operation and maintenance of the proposed wind energy development;
  - F. A plan for any proposed land or natural resource conservation associated with the development;
  - G. The estimated type and amount of local purchases of materials and services anticipated from the construction, operation and maintenance of the proposed wind energy development;
  - H. A plan for annual post-construction reporting to the Department of specific tangible benefits realized from the construction, operation and maintenance of the proposed wind energy development;
  - I. Any other tangible benefits to be provided by the proposed wind energy development; and
  - J. The community benefits package in accordance with 35-A M.R.S. §3454(2).
7. **Decommissioning.** An applicant must demonstrate adequate financial capacity to decommission the proposed wind energy development at any time during construction or operation of the development, or upon termination of development operations for any reason. This must include a demonstration that this financial capacity will be unaffected by any future changes in the applicant's financial condition. The obligation to decommission the development must be transferred to any future owner of the development in the event of a transfer of title. The financial capacity demonstrated must be sufficient to fully fund any necessary decommissioning costs commensurate with the wind energy development's scale, location and other relevant considerations, including but not limited to those associated with site restoration and turbine removal (P.L. 2007, Ch. 661, §B-13(6)).
- A. Decommissioning plan.** The applicant must provide a plan for decommissioning which describes how one or more of the proposed turbines and other components of the proposed development would be dismantled and removed from the site when one or more individual turbines or the generating facility as a whole ceases to generate electricity. Subsurface components must be removed to a minimum of 24 inches below grade, generating facilities must

be removed and disturbed areas must be re-seeded. Before decommissioning commences, the licensee must submit a plan for the continued beneficial use of any component(s) of the wind energy development proposed to be left on-site to the Department for review and approval.

- B. Trigger for decommissioning.** Decommissioning is required if no electricity is generated from one or more of the turbines for a continuous period of 12 months. The licensee may obtain an extension of this period by providing evidence showing that although one or more turbines have not generated electricity for a continuous period of 12 months, the project or turbine(s) has not been abandoned and the decommissioning requirement should not be triggered. The requirement to decommission the wind energy development will be triggered by the expiration of the design life of the development, unless the licensee of the development submits evidence to the Department demonstrating that continued operation of the development will not result in any changes that would increase environmental impacts or other risks associated with the development. When the decommissioning requirement is triggered, the decommissioning of the development, or of any turbines which are no longer operational, must be completed within twelve months.
- C. Financial assurance.** The applicant shall submit documentation of financial assurance to the Department demonstrating that the decommissioning costs will be fully funded prior to the start of construction. The applicant must establish financial assurance for the decommissioning costs in the form of a performance bond, surety bond, letter of credit, or other form of financial assurance acceptable to the Department for the total cost of decommissioning. The licensee must re-evaluate the decommissioning costs at least once every two years throughout the life of the development to account for price fluctuations. The cost estimate for decommissioning the entire development shall also be reevaluated after any decommissioning of one or more individual turbines occurs.
- D. Notification of turbine failure.** The licensee must notify the Department in writing within two business days of any turbine failure or other incident that the licensee anticipates will result in a turbine being off-line for a period greater than six months.
- E. Extension for turbine repair or replacement.** If one or more turbines are rendered inoperable by unanticipated mechanical or structural failures, or by fire, earthquake, flood, tornado, or other natural disasters; or war, civil strife or other similar violence, and if it will take more than twelve months to repair or replace the inoperable turbines, the licensee may request an additional twelve months to accomplish the repair or replacement without triggering the decommissioning requirement. The licensee must request this extension within six months of the event which renders the turbine(s) inoperable. The licensee must submit to the Department, for review and approval, a plan establishing a reasonable assurance that the turbines will be brought back into operation within twenty four months of the event. If the request is denied, the decommissioning of the inoperable turbines must be initiated within eighteen months of the event.
- 8. Terms and conditions.** The department may, as a term or condition of approval, establish any reasonable requirement to ensure that the proposed activity will meet the standards of 35-A M.R.S. §§ 3401 - 3459 and comply with this chapter.
- 9. Severability.** Should any provision of these rules be declared invalid or ineffective by court decision, the decision shall not invalidate any other provision of these rules.

Statutory Authority: Public Laws 2007, Chapter 661, Section E-2.